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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Oscar Chi-Lim AU et al. Application No.: 09/512,378 Filed: February 25, 2000 For: ENHANCING AN IMAGE, SUCH AS AN IMAGE HAVING BI-VALUED PIXEL VALUES	**MAIL STOP APPEAL BRIEF - PATENTS** Group Art Unit: 2625 Examiner: JAMES A. THOMPSON Confirmation No.: 7227

REPLY BRIEF

Commissioner for Patents
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Sir:

This Reply Brief is being filed in response to points of argument raised in the Examiner's Answer dated July 19, 2007. It is noted that the rejections under 35 U.S.C. §§ 101 and 112 (first and second paragraphs), have been withdrawn. The only issues remaining for the Board's consideration, therefore, are the prior art rejections under 35 U.S.C. §§ 102 and 103.

REJECTION UNDER 35 U.S.C. §102

As pointed in Section VII.D. of Appellants' Brief, the Fan patent does not disclose the claimed step, among others, of "deriving for each pixel of the neighborhood, a significance coefficient that is based upon the value of that pixel". Specifically, the value for the parameter α is not derived for each pixel of a neighborhood, based upon the value of that pixel. (Brief, at page 15).

In responding to Appellants' arguments, the Answer asserts that the Appellants have made two underlying interpretations. (Answer, at page 16). This assertion mischaracterizes the Appellants' arguments.

First, Appellants are not taking the position that the claim requires that the significance coefficient for each neighborhood pixel be based on the value of that neighborhood pixel "alone", as asserted in the Answer. Whether the significance coefficient is based only upon the value of the neighborhood pixel for which it is being computed, or encompasses additional factors, is irrelevant to the argument presented by Appellants. The main point of Appellants' argument is that the value of the neighborhood pixel, for which the significance coefficient is calculated, is a factor in that calculation. The final Office Action has not established that the value of *any* pixel is a factor in the calculation of the parameter α. Whether other factors are also considered is therefore not pertinent to the distinction being made.

Second, Appellants are not asserting that the value of each significance coefficient is different from every other significance coefficient in the same neighborhood of pixels. Again, Appellants' point is that the calculation of a significance coefficient is based upon the value of the neighborhood pixel for which it is being calculated. Obviously, if two neighborhood pixels have the same value, then their respective significance coefficients might also be the same. Conversely, if the neighborhood pixels have different values, then their respective significance coefficients are likely to be different. There is no requirement in the claim language, nor in Appellants' arguments, that every significance coefficient be different from every other significance coefficient that is calculated for a set of neighborhood pixels.

At the top of page 17, the Answer addresses Appellants' argument that the parameter α disclosed in the Fan patent is not derived on the basis of the value of a pixel. The crux of the Examiner's rebuttal of this position appears to be the statement "Values of dif0 and dif1 are used to ultimately determine the value of the significance coefficient (α) [see column 7, lines 29-43 and lines 51-58 of Fan]", appearing at the middle of the page. Neither the cited passages of the Fan patent, nor any other portion of its disclosure, support this statement. There is no correspondence between the variables dif0 and dif1, on one hand, and the value of the parameter α, on the other hand. The variables dif0 and dif1 are used to *detect* the presence of an edge in an image. The cited passage at column 7, lines 29-43, describes how these variables are employed to detect an edge. The patent goes onto to disclose that, once an edge is detected, it is enhanced. The *amount* of enhancement is determined by the parameter α. The patent discloses that this parameter has "a value between 0 and 1 that describes how much edge enhancement is to be applied once an edge has been identified'. (Column 7, lines 54-56). There is no disclosure that this value is in any way derived from the variables dif0 and dif1, or has any relationship to the value of a pixel in the image.

The premise set forth in the Answer is not supported by the disclosure of the Fan patent.

REJECTIONS UNDER 35 U.S.C. §103

The failure of the Fan patent to disclose that the value for α is in any way based upon the value of a pixel also undermines the rejections of the claims under 35 U.S.C. §103. As pointed in Appellants' Brief, each of claims 1, 13, 20 and 22, as

well as the claims dependent therefrom, recites an iterative process. For instance, claim 1 recites that, during the first iteration, weighting values are derived from the binary values of a halftoned image, and continuous values are obtained for the pixels, using the products of the weighting values and the binary values. In further iterations, the weighting values are derived from the continuous values obtained in at least one previous iteration. Thus, the weighting value that is used in a later iteration is not the same as the weighting value used in the first iteration. Specifically, the weighting value of the first iteration is based upon the binary value of the halftoned image, whereas the weighting value used in a later iteration is based upon the continuous value that is obtained in a previous iteration.

In a similar fashion, claim 13 recites the step of deriving a respective significance coefficient for each pixel of a neighborhood, and performing M further steps, which include the step of "rederiving" a significance coefficient. Thus, during the further steps, or later iterations, a new significance coefficient is calculated.

Even if the technique of the Fan patent is modified so that multiple iterations are performed, as suggested in the rejections, the Answer does not identify any teaching in either reference that results in this claimed subject matter. In particular, there is no disclosure which suggests that the parameter α should be determined anew for each iteration. As discussed previously, the value of this parameter is independent of the values of the pixels to which it is applied. Consequently, there is no reason disclosed in the references why this value should be changed from one iteration to the next, if multiple iterations were to be employed. As best as can be determined, the value for α is arbitrarily selected by the user, based upon the amount

of edge enhancement desired by the user. Once that amount has been selected, there is no apparent reason to change it from one iteration to the next.

In Section VII.E.2. of the Brief (pages 20-21), Appellants questioned where the Fan patent provided any support for the rejection of claim 6. Page 21 of the Answer still fails to identify the necessary support. It simply repeats language from the claim, without identifying corresponding disclosure in the Fan patent. For example, the Answer states that the Fan patent teaches "that the *function* for the significance coefficient is an increasing function of the absolute value of the difference of the half tone value of the neighborhood pixel and the baseline value of the individual pixel" (emphasis added). There is no disclosure in the Fan patent of a "function" for the parameter α. It merely discloses that this parameter is a "value *between* 0 and 1," i.e., a number. There is no disclosure of a *function* that it used to compute that number, let alone a function that is based upon the difference between a neighborhood pixel and an individual pixel, or an absolute value thereof.

The remaining points raised in the Examiner's Answer are addressed in Appellants' main Brief, and therefore not discussed further herein.

For the reasons presented above, as well as those set forth in the Appeal Brief, the rejections of the claims are not properly founded in the statute, and should be reversed.

Respectfully submitted,

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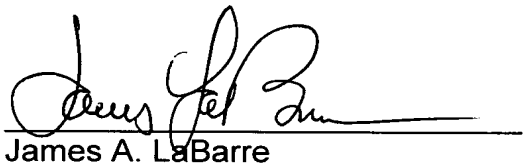
Date: September 19, 2007 By: 

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